STATEMENT OF WORK
FOR STREAMILINED ARCHITECTURAL REVIEW

(Revised : September 30, 1999)

I. SPECIFIC TASKS. The Contractor under this Order must furnish its own materials, equipment, services, and facilities; provide its own transportation; and otherwise do all things necessary for or incident to the following tasks.

A. Initial Briefing Participate in a conference call or meeting with the HUD Design Representative and other HUD staff designated by the HUD Design Representative within one week of the award of this Order. The HUD Design Representative will orally brief the Contractor and answer Contractor's questions to assist the Contractor to fully understand the requirements of this Order. The HUD Design Representative will provide Contractor with the application documents, and necessary forms required by this contract. See section III., below for obtaining HUD Handbooks.

B. Training and HUD Office Liaison. Attend HUD conducted training sessions at the HUD Office, as scheduled by the HUD Design Representative during the term of this Order. Such training sessions shall be as the HUD Design Representative deems necessary for the purpose of addressing programmatic and technical issues relevant to project inspection. Direct the HUD Design Representative's attention to any known open issue requiring HUD Office action.

II. STREAMLINED REVIEW REQUIREMENTS: STREAMLINED PROCESSING. The Contractor shall review and document the state of development of building plans and specifications for the assigned HUD Insured Mortgage projects using applicable HUD/FHA requirements. The Contractor shall perform the required work in accordance with the HUD Handbooks and materials referenced below and this contract for the assigned project.

A. The following partial list of handbooks and HUD guidance apply to Streamlined Review Requirements: (See part III, Reference Handbooks also):

1. HUD Handbook 4460.01, Architectural Analysis and Inspections for Project Mortgage Insurance, including paragraph 2-7; paragraph 3-4 A; and paragraph 4-7 D; and,

2. The "Architectural Plan Review *Checklist*", attached to this statement of work.

3. The "Final Architectural Plan Review *Certification*", attached to this statement of work.

4. The "Commonly Occurring Problems in Multifamily Construction" list attached to this statement of work.

5. 24 CFR part 100 "Fair Housing Accessibility Guidelines"(FHAG).

6. 24 CFR Ch.I, Subch. A, App. II "Uniform Federal Accessibility Standards" (UFAS) (Title 24, Code of Federal Regulations, Chapter I, Subchapter A, Appendix II).

B. Detailed Responsibilities. The contractor shall perform an Architectural Review of the Firm Commitment Application plans and specifications for the project assigned and document the state of development of plans and specifications submitted for Firm Commitment Processing. The detailed responsibilities for Architectural Plan and Specification Review processing at the Firm Commitment Stage are as follows:

1. Review the drawings and specifications against the "Architectural Plan Review Checklist".

2. Review the project features against the Common Problem Areas in Multifamily Construction list. Document on the Plan Review Checklist any of the problem areas remaining in the Firm Commitment drawings and specifications.

3. Document features in non-compliance with HUD standards and criteria. List on attached sheets, form HUD-92264 or form HUD-92264 (NHICF) as conditions.

C. Documentation of Review: (Use C1. or C2., as appropriate)

1. Perform all the necessary quantity take off's and area calculations necessary for Form HUD 92264 completion of blocks A.1, 2, 3, 5, 6, 7, 8, 9, 9a, 10, 11, 12, 13, 13a, 14, 15, 16, 16a, 17, 17a, 17b, 18, 25, 26, 27, 29, 30, 33, 34, 35, 36, 37, 38. Complete face sheet (front page) and remarks block, section "O", (attach special conditions) of Form HUD 92264 (Project Analysis and Appraisal.) Sign and date form as Architectural Reviewer.

2. Form HUD-92264 (NHICF). The Contractor shall complete blocks A1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, and 18, B25 & 26, C27 and 31, and Section P remarks, signature and date. Reference all documents in the Remarks section, e.g., site inspection report, suggested conditions, listings of outstanding exhibits, lists of major movable equipment, etc.

D. Firm Commitment Deliverable Requirements. Provide one (1) original and four (4) copies of the completed and signed Form HUD-92264 with special conditions attached and one (1) copy of the following:

1. Completed Architectural Plan Review Checklist.

2. Quantity take-off work sheets for Gross Area, Net Rentable Residential Area, and Net Rentable Commercial Area.

3. Copies of all correspondence with the design architect developed in the process of making the Firm Commitment exhibits acceptable.

E. Initial Closing Deliverable Requirements (for projects with Bidder-Design Systems only) Submit one (1) executed copy of the “Final Architectural Plan Review Certification”.

III. REFERENCE HANDBOOKS.

A. The Contractor shall perform all processing in accordance with the HUD Handbooks referenced below and this contract for the particular project and program. The Contractor shall coordinate with the HUD Office HUD Design Representative and the project sponsor/mortgagee of record as needed to perform the required processing.

B. Handbook 4460.1 Rev 2, Architectural Analysis and Inspections for Project Mortgage Insurance provides technical instruction and guidance for HUD staff, sponsors, architects and builders on acceptable design and construction of multifamily housing pursuant to HUD's basic underwriting program Section 207. Variations from these instructions for other programs where they differ from basic 207 instructions, are set forth in individual programmatic handbooks.

Please note change to paragraph 4-7 D, as revised by HUD : HUD Handbook 4460.1 Rev-2, paragraph 4-7 D, as revised by HUD Headquarters on May 14, 1997, which eliminated seismic zone 2 from the language and recommended that FEMA-178, NEHRP Handbook for Seismic Evaluation of Existing Buildings, and FEMA-172, NEHRP Handbook for Seismic Rehabilitation of Existing Buildings be used for evaluation of existing structures, in lieu of the identified ASCE standard.

Visit the Federal Emergency Management Agency (FEMA) on the Web to inquire about their standards at: www.fema.gov

C. The following HUD Handbooks, Guidelines, and Standards may also be applicable to this contract and shall be used by the Contractor to perform required services:

1. 4430.01--Initial Closing for Project Mortgages

2. 4435.1--Construction Period to Final Closing for Project Mortgage Insurance

3. 4445.1--Underwriting-Technical Direction for Project Mortgage Insurance

4. 4480.1--Multifamily Underwriting: Reports and Forms Catalog

5. 4560.1 Rev--Market Interest Rate for Project Mortgage Insurance--Section 221(d)(4)

6. 4560.2--Mortgage Insurance for Moderate-Income Housing Projects: Section 221(d)(4)

7. 4600.1--Administrative Procedures for Nursing Homes and/or Intermediate Care Facilities

8. 4910.1 (MPS)--Minimum Property Standards

9. Federal Labor Standards Compliance in Housing and Community Development Programs, Handbook 1344.1.

10. 24 CFR Part 200, Subpart O, Lead-Based Paint Poisoning and Prevention

11. 24 CFR Part 100.205 and 24 CFR Chapter 1, Subchapter A, Appendix II -- the regulations and guidelines implementing the Fair Housing Accessibility Act of 1988

12. Uniform Federal Accessibility Standards 24 CFR Ch.I, Subch. A, App. II "Uniform Federal Accessibility Standards" (UFAS) (Title 24,Code of Federal Regulations, Chapter I, Subchapter A, Appendix II).

D. The Contractor is responsible for obtaining and maintaining all applicable HUD handbooks, as necessary. HUD handbooks are obtained (at no charge) directly from HUD in Washington, DC by:

Telephone - (800) 767-7468;

Written request -

U.S. Department of Housing and Urban Development
Attention: Printing Branch, Room B-100
451 7th Street, SW
Washington, DC 20410; or

Facsimile - (202) 708-2313.

(**NOTE:** HUD Offices will **not** provide copies of Handbooks or Notices. The relevant handbooks and other instructions will be available for review **only** within the cognizant HUD Office.)

All of the Handbooks and regulatory citations described in this contract are subject to revision. HUD shall, to the maximum extent possible, notify the Contractor of changes to Handbooks, regulations, statutes, and other guidance. The Contractor has a duty to inquire whenever the Contractor believes that the guidance it is currently using has been superseded. The Contractor shall obtain copies of new guidance whenever the Contractor knows of its existence. The Contractor shall be presumed to know of the existence and the content of published regulation or law, including any changes thereto.

IV. TECHNICAL QUALIFICATIONS/EVALUATION FACTORS

A. Demonstrated experience and competence of the firm and proposed individual key personnel who will perform work under this purchase order, including individual inspector(s) in building design and specifications and construction inspection. The offeror, and any other proposed inspector(s) shall have a minimum of 6 years experience in building design, construction, or inspection, including a minimum of 2 years experience with low-rise, wood frame, concrete, new multifamily and care type construction (especially for 232 RFQ'S). Evidence of design experience may be the names of previous projects and their owners. Offerors shall submit copies of construction inspection reports completed within the last twelve months, as evidence of inspection experience.

B. Demonstrated familiarity and experience with local codes, local soils, local weather conditions, requirements and practices in the geographic area covered by the proposed purchase order in the form of completed inspection reports, training certificates, resumes, etc.

C. Demonstrated experience and familiarity with coordinating architectural, civil, mechanical, electrical, landscape, structural, geotech (soils), fire protection, etc., aspects of contract drawings and specifications. Evidence of ability to perform constructibility reviews shall be a minimum of 6 years experience in building design, construction, or inspection, including a minimum of 2 years experience with low-rise, wood frame, concrete, new multifamily and care type construction (especially for 232 RFQ'S).

D. After establishing that the minimum technical qualifications have been met by the offeror as specified in A-C above, selection will be based upon the responsible offeror whose offer conforms to the solicitation and is most advantageous to the Government (i.e., that which represents the best value to the Government, most reasonable cost, and not necessarily the lowest priced offer), cost or price and other factors considered.

V. OVERVIEW OF HUD's MORTGAGE INSURANCE PROGRAMS

A. Section 221(d)(3) and 221(d)(4) -- New Construction and Substantial Rehabilitation

The Section 221(d)(3) and (d)(4) programs provide mortgage insurance for the construction or substantial rehabilitation of rental apartments or co-operatives. Insurance is available for (1) both the construction loan (i.e., insurance of advances) and permanent take-out loans or (2) solely for permanent take-out loans (i.e., insurance upon completion).

1. Projects are eligible for 221(d)(3) or (d)(4) mortgage insurance if they:

a) Contain at least five units.

b) Comply with all applicable zoning and deed restrictions, and applicable building and other governmental regulations.

c) Are designed in accordance with HUD Minimum Property Standards.

d) Are designed primarily for residential use. Commercial facilities shall conform to the provisions set forth in 24 CFR 207.24 and 24 CFR 221.546.

2. Other features include:

a) Maximum Loan Amount under 221(d)(4) or 221(d)(3) General and Limited Distribution Mortgagors -- The lesser of the following:

(1) The sum of the per-unit statutory limits (adjusted by any high-cost factor) plus 90% of structural and land costs not attributable to dwelling use.

(2) 90 percent of estimated replacement cost.

(3) An amount that can be amortized by 90 percent of Net Operating Income.

(4) For substantial rehabilitation projects, 90 percent of the sum of the cost of rehabilitation plus the estimate of value before rehabilitation.

b) Maximum Loan Amount for 221(d)(3) Cooperatives -- The lesser of the following:

(1) The sum of the per-unit statutory limits (adjusted by any high-cost factor) plus 98% of structural and land costs not attributable to dwelling use.

(2) 98 percent of estimated replacement cost.

(3) An amount that can be amortized by 95 percent of Net Operating Income.

c) Maximum Loan Amount for All other Non-Profits -- The lesser of the following:

(1) The sum of the project's total per-unit statutory limits (adjusted by any high-cost factor) plus 100 percent of structural and land costs not attributable to dwelling use.

(2) 100 percent of estimated replacement cost.

(3) An amount that can be amortized by 95 percent of Net Operating Income.

d) Interest Rate -- Fixed rate determined by market conditions and type of funding (i.e., taxable or tax-exempt).

e) Terms of Loan -- Construction period plus maximum of 40 years from date of first payment (not to exceed 75 percent of remaining economic life); non-recourse; self-amortizing; level annuity monthly payment; fully assumable.

B. Section 232 -- New Construction, Substantial Rehabilitation, Acquisition and Refinancing

The Section 232 program provides mortgage insurance for the construction or substantial rehabilitation of, acquisition or refinancing of nursing homes, intermediate care facilities, and board and care homes. Insurance for construction and substantial rehabilitation projects is available for (1) both the construction loan (i.e., insurance of advances) and permanent take-out loans or (2) solely for permanent take-out loans (i.e., insurance upon completion).

1. Projects are eligible for 232 mortgage insurance if they:

a) Are licensed or regulated by the state or municipality.

b) Comply with all applicable zoning and deed restrictions and applicable building and other governmental regulations.

c) Provide group dining facilities.

d) (For nursing homes) - contain at least 20 beds and have received a Certificate of Need from the appropriate State agency or a market study performed by a firm acceptable to HUD, if the project is located in a non-Certificate-of-Need State.

e) (For board and care homes) - meet the requirements set forth in 24 CFR 232.39(b) and are located in States which have certified that the State is in compliance with Section 1616(e) of the Social Security Act (Key Amendment).

f) (For existing 232 facilities pursuant to 223(f)) - program requirements include:

(1) Insurance is available for purchase or refinance of existing, HUD-insured nursing homes, intermediate care facilities, and board and care homes.

(2) Projects must be insured.

(3) Structures must be at least three years old.

(4) The mortgage can include funds to cover deferred maintenance, needed repairs and improvements, provided that these do not constitute substantial rehabilitation (see above definition).

(5) The project must have attained sustaining occupancy before endorsement, or, alternatively, the mortgagor must provide an operating deficit escrow in an amount determined for a period not to exceed 18 months.

2. Other features include:

   a) Maximum Mortgage Amount for New Construction and Substantial Rehabilitation Projects -- The lesser of the following:

      (1) 90 percent of the estimated value of the project, including major movable equipment.

      (2) An amount that can be amortized by 90 percent of Net Operating Income.

      (3) For substantial rehabilitation projects owned by the mortgagor, the sum of the cost of rehabilitation plus the lesser of the existing indebtedness before rehabilitation or 90 percent of the estimated value of the project before rehabilitation.

      (4) For substantial rehabilitation projects to be acquired, 90 percent of the sum of the cost of rehabilitation plus the lesser of the purchase price of the project or the estimated value of the project before rehabilitation.

   b) Maximum Mortgage Amount for Existing Facilities (232 pursuant to 223(F) -- The lesser of the following:

      (1) 85 percent of the estimated value of the project, including major moveable equipment.

      (2) An amount that can be amortized by 85 percent of Net Operating Income.

      (3) For refinance projects, the cost to refinance the project, including the amount needed to pay off existing indebtedness; the initial replacement reserve deposit for realty and non-realty; cost of repairs and/or major moveable equipment; architect's and engineer's fees; and reasonable financing, legal, title and recording expenses.

      (4) For purchase projects, 85 percent of acquisition costs, including purchase price; the initial replacement reserve deposit; cost of repairs and/or major moveable equipment; architect's and engineer's fees; and reasonable financing, legal, title and recording expenses.

   c) Interest Rate -- Fixed rate determined by market conditions and type of funding.

   d) Terms of Loan for New Construction and Substantial Rehabilitation Projects -- Construction period plus maximum of 40 years from date of first payment (not to exceed 75 percent of remaining economic life); non-recourse; self-amortizing; level annuity monthly payment; fully assumable.

ARCHITECTURAL PLAN REVIEW CHECKLIST

(Revised : September 30, 1999)

HUD PROJECT NUMBER: _____

PROJECT NAME:_____

PLAN REVIEWER'S NAME:_____

Relationship to project: ☐ Architect ☐ Fast Track Plan Reviewer ☐ HUD Staff

DATE: _____

This list reflects a simplified plancheck applicable to 221(d)4 and 232 new construction and substantial rehabilitation. A checked box represents that the reviewer has verified that the project design and documentation meets the standards of the NW/A Multifamily Hub HUD office for that item.

1. Overall.
   - ☐a. Verify that all items required by the Firm Commitment check list in HUD Handbook 4460.1 Revision 2 paragraph 2-7 are included in the documents.
   - ☐b. Verify that area take-offs, including net rentable area (to face of paint) for each unit type, and gross building areas, are included in tabulations.
   - ☐c. Verify that <u>all</u> drawings are stamped and signed by a licensed architect or engineer.
   - ☐d. Verify that off-site work is clearly identified and separated from main contract.
   - ☐e. Verify that any project-specific requirements developed at earlier stages of the application process are reflected in the documents.
   - ☐f. Verify that all Bidder-Design Systems comply with HUD's policy memorandum dated, August 25, 1999.

2. Coordination.
   - ☐a. Verify that plans and elevations match.
   - ☐b. Verify that profile sheets have been provided for all underground drainage facilities, and profile sheets show all intersecting utilities.
   - ☐c. Verify that there are no conflicts between structural, mechanical, and electrical systems. Check worst case beam/duct/light fixture condition.

3. Survey.
   - ☐a. Verify that all requirements of HUD Handbook 4460.1 Rev. 1 paragraph 2-7 B.3. are met.

☐b. Verify that all easements indicated in exceptions to title report are located on survey.

4. Site design/grading.
   - ☐a. Verify that overall project design and amenities are appropriate for the area.
   - ☐b. Verify that play areas are provided for children.
   - ☐c. Verify that overall density is appropriate and buildings are not "landlocked" by parking lots.
   - ☐d. Verify that building layout does not contain monotonous repetition.
   - ☐e. Verify that facing buildings have adequate space between them.
   - ☐f. Verify that privacy is not compromised by the location of windows as related to other windows, decks, circulation and common areas.
   - ☐g. Verify that windows of "basement" units in walk-ups have view.
   - ☐h. Verify that "defensible space" criteria are used in design and that there are no potential hiding places.
   - ☐i. Avoid the use of parking spaces flanking the main vehicle circulation route in larger projects.
   - ☐j. Verify that design meets Fair Housing Accessibility Guidelines requirements. Section 232 projects must comply with the Uniform Federal Accessibility Standards (UFAS) as well.
   - ☐k. Verify that grading is clearly shown. Positive drainage is provided away from all buildings, low points in large lawn areas have catch basins, low points of parking lots have catch basins, walks sloping downward toward buildings have drainage at low point. Scrutinize this plan closely to identify all problem areas.*
   - ☐l. Verify that storm water detention ponds (if any) are designed to be an amenity, not an "attractive nuisance". Verify that there are no hazardous storm drainage facilities (steep, deep swales, etc.).
   - ☐m. Verify that finish floor elevations given on architectural site plan, civil plan, and structural plan match.
   - ☐n. Verify that landscape plan does not conflict with drainage plan.

5. Unit design.
   - ☐a. Verify that design (both plan and elevations), meets Fair Housing Accessibility Guidelines requirements. Section 232 projects must comply with UFAS as well.
   - ☐b. Minimize the use of three bedroom units above grade level in family-oriented projects.
   - ☐c. Verify that overall unit designs are appealing.
   - ☐d. Verify that unit circulation is logical (examples: view upon entering front door clearly leads to living room, there is at least one bathroom accessible from living area without entering a bedroom).
   - ☐e. Verify that adequate size bedrooms and closets are provided.
   - ☐f. Verify that door swings do not conflict.

6. Project construction.
   - ☐a. Verify that all roofs have minimum 1/2" per foot slope and low slope roofs comply with flat roof memorandum dated June 28, 1995.*
   - ☐b. Verify that pavement sections used will provide for long life with low maintenance.*
   - ☐c. Verify that exterior finish materials, including roofing and siding, are quality, low-maintenance materials, properly finished.*

   - ☐d. Verify that flashing details covering the various roof/wall, opening and roof penetration conditions have been clearly depicted in the drawings. Show all dimensions, drip

edges, sizes, laps, etc.*

- ☐e. Cantilever decks are to be avoided if at all possible. If zoning or other extraordinary conditions require their use, verify that they are constructed using treated framing lumber, particularly if the deck surface is spaced decking.*
- ☐f. Verify that decks, if membrane type, are sloped to drain and use a quality, puncture-resistant membrane product, or a protected membrane. Verify that all conditions are detailed and details allow for repair or replacement. Because waterproof decks frequently fail, the use of counterflashing is encouraged to ease replacement.*
- ☐g. Verify that attic and crawlspace ventilation meets code.*
- ☐h. Verify that floor coverings have HUD bulletins, where applicable.*
- ☐i. Verify that one-piece tub/shower surrounds are used wherever possible.*
- ☐j. Verify that adequate, energy conserving lighting is provided.
- ☐k. Verify that duplex outlets are on circuits separate from any fluorescent lighting and that telephone jacks have duplex outlets within six feet of them.

7. Specifications.
   - ☐a. Verify that all HUD contract, payment, change order and other related forms appear as exhibits.
   - ☐b. Verify that HUD payment, change order, and closeout requirements (including latest HUD Special Conditions Checklist and the handbook sections footnotes refer to) are summarized and explained in Division 1 of specifications.
   - ☐c. Verify that applicable Davis-Bacon wage decision is bound into project manual.
   - ☐d. Verify that applicable HUD materials bulletins are referenced in appropriate sections, approved reference standards are incorporated, and all other Minimum Property Standards requirements are met.
   - ☐e. Verify that all products and materials which appear on the drawings also appear in the specifications.

Comments. Include item number of checklist where applicable.

_____

_____

_____

_____

Date of Common Problem Areas List used in plan review_____

List (by description) any of these problem areas which remain in the final drawings and specifications

_____

Plan reviewer's certification.

I hereby certify that I have personally reviewed the project drawings and specifications against this checklist, and to the best of my knowledge, information and belief, have found that all items are in complete compliance or that any items of non-compliance have been elaborated on in the comment section or on attached documentation. I have examined the list of Common Problem Areas in Multifamily Construction and have enumerated all items in that document which appear in the final drawings and specifications. I understand that a false statement constitutes a violation of 18 U.S.C.

Section 1001 and 1010.

Signature: _____
Date: _____

Name of Firm: _____

Business Address: _____

_____

Telephone Number:(_____)_____

FINAL ARCHITECTURAL PLAN REVIEW CERTIFICATION

(For Projects with Bidder-Design Systems ONLY)

October 1999

HUD PROJECT NUMBER: _____

PROJECT NAME: _____

PLAN REVIEWER'S NAME: _____

Relationship to Project: ☐ Architect ☐ Fast Track Plan Reviewer ☐ HUD Staff

The final plans and specifications, dated _____ and submitted for Initial Closing have been reviewed in accordance with HUD's "Limited Acceptance of Bidder-Design Systems in Multifamily Projects," memorandum dated August 25, 1998. In addition, they incorporate all necessary conditions outlined in HUD's Firm Commitment, dated _____. The plans and specifications are:

☐ Acceptable as submitted.

☐ Require the following changes:

_____

_____

_____

_____

_____

I understand that a false statement constitutes a violation of 18 U.S.C. Section 1001 and 1010.

_____

Plan Reviewer's Signature and Date

4460.1 REV 1

2-7. FIRM COMMITMENT EXHIBITS.

☐ A. Form HUD-90213, Application.

B. Contract Drawings, minimum requirements.

1. Cover Sheet.

☐a. Project name, location, and HUD project number.

☐b. Names of architect, architect providing contract administration if not the same, owner, contractor and bonding company with spaces for signature, title if appropriate, and date.

IDENTIFICATION

Architect (Print Name) by (Signature, title, date)
Owner (Print Name) by (Signature, title, date)
Contractor (Print Name) by (Signature, title, date)
Bonding Co. (Print Co. Name) by (Signature, title, date)

c. Tabulation of living units:

☐1) Number of units of each type.

☐2) Number of units and type in each building.

☐3) Number of nonrental living units.

☐4) Totals.

☐d. Location map.

☐e. The number of parking spaces, open and covered.

2. Index of Drawings.

☐a. Drawing numbers, consecutive.

☐b. Drawing titles.

☐c. Date of last revision date for each drawing.

3. Topographic Survey, scale 1"=40'. (Transit survey, made at site.)

☐a. Contours at no more than 2-foot intervals. For steeply sloping site, maximum interval of 5 feet.

☐b. Name of City, County and State of property location.

☐c. North arrow, magnetic and true.

☐d. Lot and block numbers of property and adjacent properties.

☐e. Distance to nearest street.

☐f. Dimensioned length and direction of each boundary and physical indication of boundary (monuments, markers, fences, etc.).

☐g. All easements, right-of-way, set-back lines, and other restrictions.

h. Existing streets, alleys, drives and walks.

☐1) Provide street names or designations.

☐2) Indicate surfacing, curbs and other pertinent data.

☐i. Location and size of all utility lines and facilities. Include sewer invert elevations and direction of flow.

☐j. Location of natural features such as preservable trees, streams, rock outcropping, etc.

☐k. On-site and adjacent existing structures with description.

☐l. Available information about subsoil, ground water, fill, and buried foundations, tanks, debris, etc.

☐m. Legal description of the property, and total square feet and acreage.

☐n. All encroachments or deviations from the description of the property or conflicts with descriptions of adjoining properties.

☐o. All high-pressure gas and liquid petroleum transmission pipelines within 220 yards of the property boundaries.

☐p. Name of registered surveyor, signature and date of survey.

4. Plot Plan, scale 1"=40'.

☐a. North arrow, magnetic and true.

☐b. Site boundaries with dimensions.

☐c. Streets, alleys or roads adjacent or within the project boundaries, together with walks, curbs, pavements, steps, ramps, play areas, parking areas and drying yards, and utilities such as gas, water, electric and sewer lines.

☐1) Note dimensions or size for each, and distance from structures or other locating points; materials to be used for such items as walks and pavements, and the extent of each.

☐2) Note as "New" or "Existing" and indicate any streets or alleys within the project boundaries to be dedicated for public use and maintenance.

☐d. Buildings, locating dimensions, overall dimensions, and building designations.

☐e. Elevations of first floor, together with elevations of finish and existing grade at building corners and entrances (including ramps, landings and steps); elevations of curbs and streets; invert elevations of main sewers and direction of flow.

☐f. Utilities servicing the property or distance to point of connection and utility lead-ins or service connections; yard lighting, lawn hydrants and lawn sprinkler systems with pipe sizes, controls, drains, and fire hydrants.

☐g. Retaining and garden walls, fences, guard rails, garages and accessory structures; dimensions and details as necessary.

☐h. Existing trees and other natural features and whether to be removed or preserved; details as necessary.

5. Grading and Drainage Plan, scale 1'=40'. Must be submitted if required information cannot be clearly shown on Plot Plan.

☐a. Existing and new grade elevations of all building corners and new grade elevations at entrances, walks, drives, parking areas, terraces, yards, walls and steps and first floor elevations. Proposed grading contours at appropriate intervals indicated in solid line with existing contours indicated with dotted line.

☐b. Site drainage. Indicate controlling grades and dimensions of all tile lines; culverts, catch basins, drain inlets, gutters, and all curbs; drainage disposal, and any existing facilities to be used.

6. Landscape or Planting Plan, scale 1"=20'.

☐a. Outlines of structures and other improvements, together with physical features of the site to establish the location and relationship of planting and related construction.

b. Distribution of plant material.

☐1) Location, quantity and key number of each species in each group.

☐2) Outline of all planting beds and primary and secondary lawn areas.

☐3) Existing trees and shrubs to be preserved or transplanted.

c. List of plant material. Use standardized names.

☐1) Key number for each species.

☐2) Size, quality and quantity of each.

☐3) Any other pertinent data.

NOTE: Topo, plot, grading and drainage, and landscape may be combined, in whole or part, if all required information can be clearly shown on a site or plot plan.

7. Floor Plans, scale 1/8"=1'.

☐a. Foundation or basement, typical floor, and any non-typical floor for each type of building.

☐b. Show dwelling units; mechanical, service, storage, commercial, and common areas; walls and corridors, stairs, elevators, lobbies, and other circulation areas.

☐1) Dimensions: overall, column centers, building breaks and set backs; locate openings and walls.

☐2) Rooms: name and/or number, reference to details.

☐3) Floors: elevations, patterns, changes in material, ramps, curbs, base, and recesses.

☐4) Walls: material indication, pipe and duct spaces, recesses, panels.

☐5) Ceilings: breaks or changes in height, skylights; reflected for the patterns showing lights and diffusers.

☐6) Doors: swings and number (type designation).

☐7) Windows: location and number (type designation).

☐8) Toilet rooms: fixtures, stalls, drains.

☐9) Stairs: well dimensions, traffic direction, number of risers.

☐10) Miscellaneous: drinking fountains, handrails, fire extinguisher or hose cabinets, shelving, lockers, folding partitions, expansion joints, and other proposed features.

☐c. Provide additional enlarged scale drawing of areas not clearly shown at this scale.

8. Dwelling Unit Floor Plans, scale 1/4"=1', each basic type unit and any variation.

☐a. All conditions where units are to join other units, including end unit conditions.

☐b. Living unit types identified by a number or letter.

☐c. Partitions to scale; rooms, closet and hall dimensions; overall dimensions; window locations and type designations referring to schedule showing sizes; door swings and type designations referring to schedule showing design, thickness and size; dimensioned stair location, runs and width, landings, handrails.

☐d. Plumbing fixtures; soil and vent stacks; kitchen cabinets and equipment; electric lights, switches, receptacles and special power outlets; closets, shelving and clothes rods; radiators or other heating devices, chimneys, and all other such items. Provide separate mechanical drawings where plumbing, electrical, or heating and cooling information would obscure other essential information.

☐e. Locate structural elements such as columns, lintels, joists, beams, girders, and bearing partitions. Show sizes, spacing and direction of members. Provide separate structural drawings where the structural information would obscure other essential information.

9. Roof Plan, scale 1/8"=1'.

“a. Dimensions: overall of building and roof surface; overhangs and canopies.

☐b. Drainage: roof drains or gutters and leaders; pitch to drains or pitch and expansion joints in gutters; high and low points on flat roofs and direction or drainage.

☐c. Materials: type of roofing, cornice or parapet, copings and drip edges.

☐d. Other: chimneys and crickets, skylights, scuttles, hatches and bulkheads, railings, expansion joints, and equipment located on roof.

NOTE: All plans must reference applicable details and schedules by section lines and notes.

10. Elevations.

☐a. General Elevations, scale 1/8"=1'. Exterior design of all sides of buildings together with existing grades and proposed grades at buildings, floor lines and elevations, floor height dimensions, roofs, attic vents, parapets, cornices, downspouts, window and door opening outlines with type for each opening (some having doors and windows

completely indicated), material notes, and other essential features.

☐b. Typical Elevations, scale 1/4"=1'. Typical elevations to show the portions of each type facade with tile exterior design, including materials, jointing, special features, windows, doorways, cornices, parapets and all details, unless clearly shown on general elevations.

11. Sections.

☐a. Building Cross Sections, scale 1/4"=1'. Various height conditions and indications to show the cross sectional characteristics of the buildings and floor level relations, when such information cannot be presented adequately on other drawings.

b. Detail Sections, scale 3/8"=1'. Each type of exterior wall and bearing wall or partition complete from footings to roof.

☐1) Exterior Sections. Complete construction of: walls with thickness at various stories; floors; furring; waterproofing; ceilings; roofs, including pitch and material; window heads and sills; window heights; flashings; room heights; anchorage and bearings; cornice and gutter; insulation; vapor barrier; foundation walls and footings; conditions at various depth basements, basement floors or access space; roof space; attic and foundation vents.

☐2) Interior Sections. All types of walls and partitions with floor, ceiling and roof construction: supporting walls or members, columns and girders; foundations and footings, size and spacing of all members; joints; splices or ties, sub and finished floors; walls and ceilings.

☐3) Nontypical Sections. Any condition not clearly shown on other sections, such as intersections of roof with wall, flat roof with sloped roof, retaining wall with foundation or exterior wall, etc.

12. Details, scale 3/8"=1', plan, elevations and sections.

☐a. Main, secondary, and service entrances and lobbies.

☐b. Stairs. (Sections must show stringers, treads, risers, newels and balusters; rise, run and headroom; and dimensions.)

☐c. Elevators, machine rooms, equipment rooms, and boiler rooms,

☐d. Kitchens, bathrooms, and common areas, such as community and meeting rooms.

☐e. Special exterior and interior details, such as platforms, areaways, bay windows, dormers, cupolas, fireplaces, and millwork.

13. Schedules, complete information for convenient references.

☐a. Door Schedule. Size, thickness, material and design of each door, with designation on plan. Fire doors,

indicate approved rating.

☐b. Window Schedule. Size, thickness, material and design of each window, with designation on plan.

☐c. Finish Schedule. Material and type finish of floors, base or wainscot (with height), walls, ceilings and trim for various rooms or spaces.

☐14. Structural, appropriate scale, complete information plans, elevations, sections, details and schedules coordinated with architectural drawings.

☐a. Locate columns, lintels, joists, beams, girders, and bearing partitions. Show size, spacing and direction of members.

☐b. Details for connections of members, foundations, and anchorage. Reflect level of safety against progressive collapse.

☐c. Details for construction of unusual or special features.

☐d. General structural design notes, showing live and dead loads, seismic zone, table of allowable stresses and modulus of elasticity for all structural materials, limits of deflection-to-span ratio and other pertinent data.

☐e. Information may be shown on architectural drawings unless it obscures other essential information.

☐f. Drawings shall be titled, numbered, dated and stamped by a registered architect or professional engineer.

☐15. Mechanical, appropriate scale, complete information on plans, elevations, sections, details and schedules coordinated with architectural drawings. Simple systems may be shown on architectural drawings unless it obscures other essential information. Architect's or professional engineer's seal required.

a. Heating, each system.

☐1) Location and size of boilers, furnaces, or heaters; make, model number or type and net output of each.

☐2) Layout, location and size of supply and return piping, ducts, raisers and branches. Locations requiring insulation.

☐3) Location, sizes and output in Btu of all radiators, fan coil units, registers, grille and panel surfaces, together with valves, vents, traps, dampers and other accessories; make, model number or type of each.

☐4) Make, model number and firing rate of all firing equipment, and similar detailed data on all other component parts of each system such as controls, pumps, blowers, filters, and similar items.

☐5) Location, type, manufacturer's name and model number of all domestic water heating and related equipment including storage; arrangement and sizes of connecting piping, and make and model number, and

other pertinent information of all control equipment and safety devices.

☐6) System design data, include: outside and inside design temperature; boiler operating pressure and temperature; Btu output; pressure or temperature drops; air temperatures at registers; pump or fan capacities, volumes, and velocities; heat loss for each space to be heated; output capacity in BTU of each radiator, convector, fan coil unit, register, or panel Surfaces; total heat loss of each building and total calculated heat load connected to each heating system; net output in BTU of each boiler and each system.

☐7) Design data for each domestic hot water system. If connected to heating system, include additional heat load in total for heating system.

b. Plumbing.

☐1) Horizontal sewer and drain system together with soil, waste and vent stacks; branch wastes and vents; drains, cleanouts, traps, sump pumps, etc., connections to sewer, size of all lines and stacks, and invert elevations of site utility lines. Riser diagram of typical stack including soils, wastes, and vents.

☐2) Cold water distribution system, size of mains and branches, location of hose bibbs, valves and drains. Including sprinkler system (fire and lawn).

☐3) Hot water distribution system together with circulating lines and pumps, valves, sizes of mains and branches.

☐4) Gas distribution system, size of mains and branches, meters, etc.

☐5) Gas piping riser diagram, size of pipes.

☐6) Hot water heater piping diagram.

☐7) Symbol list.

☐8) Fixture schedule.

☐9) Layout, scale 1/4"=1', of typical bathrooms, equipment rooms, and congested areas; indicate size of pipe.

c. Electrical.

☐1) Service lines, service characteristics, type and size of conduits and service wires; and service panel type, size, rating, circuit breaker trip and frame rating, fuse type and rating. Primary and secondary distribution lines, unless in the scope of work, should be shown only if necessary to clarify scope of work.

☐2) Meter and panel locations and manner of mounting.

☐3) Interior distribution and wiring of typical units: number of wires in circuits, wire and conduit type

and size and manner of installation, i.e., surface mounted, above ceiling, through wall studs in furred walls, imbedded in concrete slab, etc.

☐4) Lights, receptacles, switches, special purpose outlets and connections to all equipment if not shown on architectural plans.

☐5) Yard and grounds lighting, public and common spaces lighting, and controls.

☐6) Power riser diagram and switchboard schedule.

☐7) File alarm riser diagram.

☐8) File detection and alarm system riser diagram and schedule.

☐9) Symbol list.

d. Air Conditioning.

☐1) Location, cooling capacity, and horsepower of compressor; cooling tower and condensing units; and individual cooling units. Make, model number, and rating.

☐2) Layout of system including ducts, grilles, registers, diffusers, sizes, and location of valves, vents, dampers and controls.

☐3) BTU load requirements for each individual space. Size and rating of equipment.

☐4) System design data: duct system external static pressure, pressure drop per foot CFM space requirements, blower ratings, type of condenser cooling, inlet and outlet water temperature, and water flow rate in GPM.

☐5) Electric wiring layout: location of motors, fans, pumps, switches, and load requirements.

C. Contract Specifications.

1. Cover Sheet.

☐a. Project name, location, and HUD project number.

☐b. Names of Architect, Architect providing contract administration, if not the same, Owner, Contractor, and Bonding Company with spaces for signature, title, if appropriate, and date.

IDENTIFICATION

Architect (Print Name) by (Signature, title, date)
Owner (Print Name) by (Signature, title, date)
Contractor (Print Name) by (Signature, title, date)
Bonding Co. (Print Co. Name) by (Signature, title, date)

2. Index.

a. Divisions with name.

☐1) Trade, name and page number.

☐2) Trade section, name and page number.

☐b. Pages numbered consecutively.

3. Conditions.

☐a. General Conditions of the Contract for Construction, AIA Document A201, latest edition.

☐b. Supplementary Conditions of the Construction Contract, Form HUD-2554, latest edition.
☐c. Architect's Supplementary Conditions, if any.

☐4. Divisions. Use 16 basic divisions of Masterformat Construction Specifications Institute (CSI). (See Appendix 1.)

5. Trade Sections.
☐a. Complete description of all work to be performed.
☐b. Scope of work, materials, and workmanship.
☐c. Coordinate instruction with other trades.

6. Methods of Specifying.
☐a. Performance, list required qualities of products, assemblies, and end result.
☐b. Reference Standards, incorporate references to nationally recognized standards published by industry associations, testing organizations, and government, such as, American National Standards Institute (ANSI), Underwriters' Laboratories (UL), and Department of Commerce (DOC).
☐c. Proprietary, list products and assemblies by manufacturer or brand name, and grade or model.
☐ 1) Include two and preferably three or more comparables.
☐2) Single brand only if there is no comparable.

7. Unacceptable.
☐a. Use of the words "or equal."
☐b. Reference to HUD or HUD publications, such as:
1) Minimum Property Standards (MPS).
2) Materials Bulletins (UM).
3) Materials Releases (MR), and
4) Structural Engineering Bulletins (SEB).
☐c. Cash or lump sum allowances.

D. Offsite Drawings and Specifications.

1. Offsite improvements are those required to service the project but outside of the property boundary lines.
☐a. Include utilities, walks, curbs, gutters, streets, drainage structures, landscaping, and similar improvements beyond the property lines.
☐b. Do not include short extensions of utilities, walks, drives, drainage structures and similar improvements beyond the property lines which connect with those next to the property lines. Public sidewalks next to the property lines are not included.

2. Offsite improvements may be included in the contract drawings and specifications but the extent must be clearly defined on the plot plan and in the specifications.

3. Complete, separate offsite drawings and specifications are preferred.

Common Problem Areas in Multifamily Construction

The following areas represent the most serious construction problems which occur in multifamily projects and should be checked during plan review. Collectively these items represent the greatest risk to HUD for default due to construction quality related items. A couple of these items also occur in the Minimum Property Standards. This list is geared toward a streamlined plancheck of 221(d)4 and 232 Board and Care/Assisted Living new construction projects covering most of the serious construction problems. This list does not address legal encumbrances (easements, encroachments, etc.) on a site.

1. Poor site drainage: There must be adequate slope to begin with, yard drains must be used in any "landlocked" area, all roof drains must connect to a tightline system separate from the footing drains. Downspouts in areas near vehicle circulation must be protected against impact, or be heavy gauge steel. Finish grading inspection needs to be emphasized in construction inspections, and needs to be inspected in detail immediately after finish grading and before planting.

2. Inadequate site lighting and use of inefficient site lighting and common area lighting fixtures: Design of site lighting, corridor lighting and stairway lighting needs to emphasize security. Motion sensor activated lighting is effective for site perimeters. Lighting in common areas should be fluorescent or metal vapor. These light sources, in addition to being more efficient, need far less frequent lamp replacement, so there will be fewer areas which are dark because of burnouts.

3. Landscape design problems: Landscape design must consider appropriate sizes and future growth, drought resistance, control over pedestrian circulation through planting beds, coordination with the grading and drainage plan, and the required minimum 6 inch clearance to siding and non-decay-resistant wood.

4. Below grade floors which flood due to failed footing drains. Frequently, flexible corrugated plastic pipe is used for footing drains. This pipe is often kinked during construction, preventing drainage. Because of the severity of damage resulting from flooding of living units, drains for below grade floors must be rigid perforated pipe. Where flexible pipe is used for footings at floors above grade, a mandrel equaling 2/3 the nominal inside diameter of the pipe must be pulled through the piping to verify that there are no obstructions. If any obstructions are found, they must be corrected. This item needs to be emphasized in construction inspections. The concrete must also be thoroughly damp proofed to prevent finish damage caused by damp concrete.

5. Poor quality paving: Use of low-strength, non-air-entrained concrete (5-7% air entrainment is recommended), thin slabs over unstabilized base, lack of expansion joints, and tree root damage caused by bad planting choices all lead to early pavement failure. Walkways should

have edges thickened to a minimum of six inches, and should be poured over a base compacted to a minimum of 90% of maximum compaction. This needs to be emphasized in construction inspection. UBC appendix chapter 26, table A-26-A calls for 3,500 PSI concrete for exposed concrete in this climate.

6. Inadequate pavement sections in parking and driving areas, lack of drains, inappropriate curbing placement: Inadequate paving sections: 2" or less asphalt over 3" rock doesn't hold up, 3" over 4" would. An adequate number of drains must be provided to ensure good slope to resist ponding which leads to early pavement failure. These items become critical on clay soils.

7. Flat roof leaks resulting from poor roofing specifications and faulty workmanship at penetrations: A minimum of 1/2" per foot slope is required on flat roofs. Waterproof decks can get by with 1/4" per foot because they are typically small. Large decks would need a membrane which slopes at 1/2" which could be covered by a protection course having less slope.

8. Sloped roof leaks caused by poor quality three tab roofing installed by unqualified contractors. Roofing shingles should have a minimum 20 year warranty. Fifteen year shingles are very vulnerable to wind damage and tend to fail prematurely, with minimal remaining value left under the warranty. Contractors must have a minimum of five years experience.

9. Poor quality siding with inadequate finish, improper detailing including lack of flashings and sealants: If any sort of processed wood siding (hardboard, LP, etc.) is used, at a minimum it must have one coat of a quality acrylic primer covering all sides, plus a minimum of two coats of a quality acrylic latex paint on surfaces exposed to weather. This material expands immensely with water absorption, and it is necessary to protect it well.

10. Faulty flashing details: Flashing must be designed to shingle water out. Flashing at window heads needs to lap over the window fin. Flashings at walls over roofs need to extend over the roofing felt and under the wall felt or infiltration barrier. Often flashing problems result from faulty construction. This needs to be emphasized in construction inspections.

11. Open decks and railings which are not pressure treated: Code (UBC 2516 (c) 11) requires that structural members exposed to weather be of decay-resistant lumber. Framing and decking of wood decks needs to meet this requirement, which is often overlooked in multifamily construction. Railings will last significantly longer if constructed from decay-resistant lumber. This item needs to be emphasized in construction inspection.

12. Waterproof decks which aren't: Frequently poor quality membrane systems, which puncture easily, are used. Specify only systems which have a three year minimum warranty, puncture-resistant wearing surface and extend monolithically up the walls a minimum of three inches. Use of open railings will minimize the danger of clogged drains and allow the deck to dry out much faster. Sloping the entire deck to a drip flashing or gutter provides a simple, trouble-free system.

13. Inadequate attic ventilation: Inadequate ventilation will lead to fungus growth and very costly repairs.

14. Poor crawlspace ventilation, missing vent screens, inadequate access: Ventilation should be

checked against code, and sturdy vent screens should be specified.

15. Counter damage caused by knives: Kitchens must incorporate built-in cutting boards to discourage residents from using plastic laminate counter tops as cutting boards. The cutting boards should be hard wood or solid synthetic for long life. Plywood tends to delaminate.

16. Poor quality floor coverings: Cushion vinyl, in particular, never works. Carpeting must have HUD Use of Materials (UM) 44d certification for the traffic category it will be used in. Pad must have UM 72 certification.

17. Bathroom water damage: Bathroom water damage results from a variety of sources. Tub surrounds should ideally be one-piece, integrated with the tub to provide no-maintenance protection. Also, particle board subflooring tends to hold water. It should be avoided at bathroom floors. Gypsum underlayment must have a waterproof sealer applied before floor coverings are installed. All walls of bathrooms must be water-resistant gypsum board to resist steam. Paint with fungicide added will help reduce mildew build-up. Where roll-in showers are used, the floor coverings and the bottom portion of the walls adjacent to the shower must be impervious to water.

18. Lack of bathroom fans and general ventilation in unit: The state ventilation code, enacted in 1989, with aggressive enforcement beginning in roughly 1991, should minimize these problems in newer projects. Bathroom fans should be quiet type (less than three sones: specify rating in plans and specifications) and wired to go on whenever the light goes on, because some residents are resistant to using fans.

19. Window condensation damage: More of a problem with older projects. Newer projects which meet the energy code will generally have double pane, vinyl frame windows, reducing, but not eliminating condensation. A real wood interior sill of 3/4" minimum thickness, instead of gypsum board, will provide good resistance to water and the additional durability needed in multifamily construction. Jambs must be water-resistant gypsum board, or MDO plywood, to resist condensation.

20. Lack of insulation and vapor barriers: Less of a problem on newer projects since building departments have begun enforcing the state energy code. Insulation of rim joists, wall corners, and small framing cavities are frequently overlooked. If vapor barriers are inadvertently omitted, PVA paint may be used. These items need to be emphasized in construction inspections.

21. Poor quality hardware: Hardware within the unit should be a light commercial grade at a minimum, to achieve long life. Minimum Property Standards covers this in detail.

22. Bifold and bipassing doors: These work well in elderly housing projects, but must be avoided if at all possible in family-oriented projects. If bipassing doors can't be avoided, high quality, heavy grade extruded aluminum track and roller hardware must be used.

23. Hollow core door damage: Hollow core doors are easy to puncture. Hinge-mounted door stops must also be avoided. Even with light-weight hollow core doors, these door stops pull the hinges from the jamb, and they frequently puncture the door skin. Hollow core doors are less of a problem in elderly housing construction, but the higher quality image of solid doors is appropriate for the expense of care-type housing.

24. Plumbing installation which includes indiscriminate cutting of structural members: This is a major source of floors which deflect too much. Architectural drawings must include a detail showing acceptable joist drilling and notching conditions. Enforcement of the detail should be emphasized in construction inspections.

("Common Problem Areas…" Revised - 1/23/97)